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| 09/653,719 | 09/01/2000 | Alla Jurievna Krylova | JSS-0005 | 6607 |

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| EXAMINER | |
|---|---|
| NGUYEN, CAM N | |
| ART UNIT | PAPER NUMBER |
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DATE MAILED: 02/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. 09/653,719 | Applicant(s) Krylova et al. |
|---|---|---|
| | Examiner Cam Nguyen | Art Unit 1754 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *three* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *Sep 1, 2000* .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above, claim(s) *18 and 19* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-17* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15) ☒ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

## DETAILED ACTION

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-17, drawn to a process for the formation of an enhanced dispersed active metal (DAM) catalyst, classified in class 502, subclass 325+.

II. Claims 18-19, drawn to a process for producing higher hydrocarbons by the hydrogenation of carbon monoxide by reaction with hydrogen in the presence of a catalyst, classified in class 208, subclass 145.

The inventions are distinct, each from the other because:

2. Inventions I and II are related as process of making and process of using the product. The use as claimed cannot be practiced with a materially different product. Since the product is not allowable, restriction is proper between said method of making and method of using. The product claim will be examined along with the elected invention (MPEP § 806.05(I)).

3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II and have acquired a separate status in the art as shown by their different classification, and because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with ***Mr. Jay Simon*** (attorney) on ***12/12/01*** a provisional election was made ***with traverse*** to prosecute the invention of Group I, claims 1-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18-19 are

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

### *Specification*

6. The disclosure is objected to because of the following informalities:

On page 4, third paragraph, "Docket No. 33737" is not a recognized patent application number. Applicants should rather be using application serial # in the disclosure when referring to a copending application. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112 (Second Paragraph)*

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. In claims 1 & 14-17, line 1,the term "enhanced" in the claim is considered as "not" part of applicants' invention. The inclusion of this term renders the claim confusing and unclear as to what is to regard as applicants contribution. If the instant invention is an improvement in an otherwise old process, then the use of the format set forth in 37 CFR 1.75(e) is suggested.

B. In claim 1, line 4, "suitable fluid" is unclear as to what liquid is being used. For instance, gasoline, water, and oil are consider fluid.

C. In claim 1, step (a), recitation of "forming a slurry of particulate DAM catalyst characterized by the capacity to form more than one oxide in a suitable fluid" does not particularly point out what metal compounds are containing in the slurry for forming the more than one oxide as being claimed.

D. In claim 1, step (b), "for a time such that the metals no longer exhibit uncontrollable pyrophoricity" is unclear because it does not particularly point out the time.

E. In claim 1, step (c), "suitable solvent" is unclear as to what solvent applicants consider suitable. It appears that organic solvents, such as alcohols and acids are not applicants intended.

F. Claims 8 & 9 recite the limitation "the mixture" in line 1-2. There is insufficient antecedent basis for this limitation in the claim.

G. Claim 13 recites the limitation "said mixture" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102(b)/103***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 14 & 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kibby et al., "hereinafter Kibby", (U.S Pat. 4,492,774).

Kibby discloses an enhanced catalyst wherein a synthetic cobalt aluminosilicate catalyst (see col. 2, ln 5-7) is added with silver, gold, or a Group VIII metal selected from platinum, palladium, ruthenium, and iridium, preferably ruthenium, onto the surface of the catalyst (see col.

3, ln 16-19). The claim is met by the teaching of the reference since ruthenium is taught to be suitable among the listed metals.

Recitation of product-by-process limitations in the claims is noted. While the product of the reference is not made by the same process as being claimed, the product made is the same and contains the same catalytic components. Further, it has been held that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method or production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even the prior art product was made by a different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

11. Claims 15 & 17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mauldin et al., "hereinafter Mauldin", (U.S Pat. 4,992,406).

Mauldin discloses a catalyst having promoted activity with cobalt and rhenium added (see col. 5, ln 18- col. 6, ln 65).

Recitation of product-by-process limitations in the claims is noted. While the product of the reference is not made by the same process as being claimed, the product made is the same and contains the same catalytic components. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 1-4, 7, & 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kibby et al., "hereinafter Kibby", (U.S Pat. 4,492,774).

Kibby discloses a process of activating a cobalt aluminosilicate catalyst by a minimum of three stages, a reduction, an oxidation, and a final reduction of the catalyst (see col. 2, ln 4-18). The reduction treatments are carried out at an elevated temperature in a reducing atmosphere, preferably hydrogen, and the oxidation treatment is carried out at an elevated temperature in an oxidizing atmosphere, preferably air or diluted air, wherein the use of diluted air is desired as a means of controlling the highly exothermic oxidation reaction (see col. 2, ln 52-58). Kibby further discloses that the activity of the catalyst can be enhanced by impregnating silver, gold or Group VIII metal selected from the group consisting of platinum, palladium, ruthenium, and iridium, preferably ruthenium, onto the surface of the catalyst. Preferably, this impregnation is done following the oxidation procedure and prior to the final reduction procedure. See col. 3, ln 15-21.

Regarding claim 1, step (a), Kibby is silent with respect to "forming a slurry of particulate DAM catalyst in a fluid". However, it is considered that the activation treatment process as

disclosed by Kibby encompass the claimed step (a) because the disclosed process overall is the same as applicants' process.

Regarding claim 1, step (b), with respect to the claimed oxidation treatment temperature of "below 200°C" and "for a time that the metals no longer exhibit uncontrollable pyrophoricity" in claim 1, it is considered this limitation is met by the teaching of the reference because Kibby fairly teaches an oxidation treatment temperature ranging from about 100°C - about 600°C, preferably about 200°C - about 500°C, for sufficient time to cause a significant increase in oxygen content of the material (see Kibby at col. 2, ln 63-67). The claimed temperature range falls within the disclosed temperature range, therefore met.

Regarding claim 1, step (c), Kibby teaches impregnating silver, gold or Group VIII metal selected from the group consisting of platinum, palladium, ruthenium, and iridium, preferably ruthenium, onto the surface of the catalyst to enhance the activity of the catalyst (see Kibby at col. 3, ln 15-21), thus Kibby suggests the claimed step (c).

With respect to claim 1, step (d), it appears that the "recovering and drying" of a product is conventional in the catalyst art. The process as disclosed by Kibby would *prima facie obviously* including this step in order to collect the product particles for a final reduction of the metal compounds to be deposited onto the surface of the catalyst.

Regarding claim 2, same reasons as above for step (d).

Regarding claim 7, recitation of "step (b) is carried out at a temperature below 100°C" is noted. It is considered that this recitation is met by the teaching of the reference because Kibby

fairly teaches an oxidation treatment temperature ranging from about 100°C - about 600°C, preferably about 200°C - about 500°C, for sufficient time to cause a significant increase in oxygen content of the material (see Kibby at col. 2, ln 63-67). The term "about 100°C" as disclosed by Kibby, as a lower temperature range, is considered to encompass values within the claimed range of "below 100°C" because "about 100°C" would clearly include values equal to about 100°C.

Regarding claim 13, in view of the teaching in the Kibby reference that the catalyst obtained is repeatedly reoxidized at 500°C in air for two hours resulting in higher product weight percents (see Kibby at col. 4, Example 1, ln 40-52), Kibby fairly suggests the claimed heat treating step as being claimed.

14. Claims 8-9 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kibby et al., "hereinafter Kibby", (U.S Pat. 4,492,774), as applied to claims 1-4, 7, & 13 above, and in further view of Behrmann et al., "hereinafter Behrmann" (U.S Pat. 5,545,674).

Kibby discloses a process as described above, except for the following differences.

Regarding claims 8 & 9, Kibby does not disclose "drying the mixture of the oxidized catalyst precursor and said one or more salts in air at a temperature above 100°C for at least one hour". It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have done the same in the process of Kibby because Behrmann fairly suggests drying the catalyst by heating at a temperature above about 20°C, preferably between 20°C and 125°C in the presence of nitrogen or oxygen, or both, in an air stream or under inert

vacuum (see Behrmann at col. 8, ln 61-54). The claimed temperature is met by the teaching of the reference since it falls within the disclosed temperature range.

Regarding claim 12, Kibby does not disclose "cobalt" as a metal and "nitrate" as a salt. However, it would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have utilized cobalt nitrate in the process of Kibby in order to obtain an improved catalyst because cobalt nitrate is a known compound to make catalysts such as those of applicants, as evidenced by Behrmann (see Behrmann at col. 8, ln 3).

15. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kibby et al., "hereinafter Kibby", (U.S Pat. 4,492,774), as applied to claims 1-4, 7, & 13 above, and in further view of Mauldin et al., "hereinafter Mauldin", (U.S Pat. 4,992,406).

Kibby discloses a process as described above, except for "rhenium ammonium perrhenate" as a metal salt.

It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have utilized this known compound in the process of Kibby in order to obtain a catalyst because it is taught by Mauldin suitable for making catalyst as those of applicants (see Mauldin at col. 5, ln 45-49).

16. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kibby et al., "hereinafter Kibby", (U.S Pat. 4,492,774), as applied to claims 1-4, 7, & 13 above, and in further view of Manzer et al., "hereinafter Manzer", (U.S Pat. 6,235,677 B1).

Kibby discloses a process as described above, except for ruthenium trichloride.

It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have utilized ruthenium trichloride in the process of Kibby in order to obtain an improved catalyst because it is a known compound and taught by Manzer to make catalysts, such as those of applicants (see Manzer at col. 10, Example 1).

### *Allowable Subject Matter*

17. Claims 5 & 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art does not disclose or suggest a process requiring simutaneously carry out step (b) and step (c) together.

### *Citations*

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Herbolzheimer et al. (U.S Pat. 5,348,982), Chester et al. (U.S Pat. 4,523,047), Kobylinski et al. (U.S Pat. 4,670,414), Wood et al. (U.S Pat. 6,132,694), Lapidus et al. (U.S Pat. 6,331,574 B1), Singleton et al. (U.S Pat. 6,262,132 B1), Beer (U.S Pat. 6,169,120 B1), & Lapidus et al. (U.S Pat. 6,337,353 B1), Mauldin (U.S Pat. 5,856,260), Chao et al. (U.S Pat. 6,333,294 B1), & Culross et al. (U.S Pat. 5,856,261) are cited for related art.

***Conclusion***

19. Claims 1-19 are pending. Claims 1-17 are rejected. Claims 18-19 are withdrawn due to nonelected (distinct) invention. No claims are allowed.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cam Nguyen, whose telephone number is (703) 305-3923. The examiner can normally be reached on M-F from 8:30 am. to 6:00 pm, with alternative Monday off.

The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 (before finals) and (703) 872-9311 (after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Nguyen/cnn

February 11, 2002

STEVEN P. GRIFFIN
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